

SR99 Alaskan Way Viaduct

Briefing to the Transportation Commission

“Settlement of Piers 93 and 94”

Jerry Weigel

Bridge and Structures Engineer

Jugesh Kapur

Bridge Design Engineer

Douglas B MacDonald

Secretary of Transportation

Paula Hammond

Chief of Staff

April, 2005

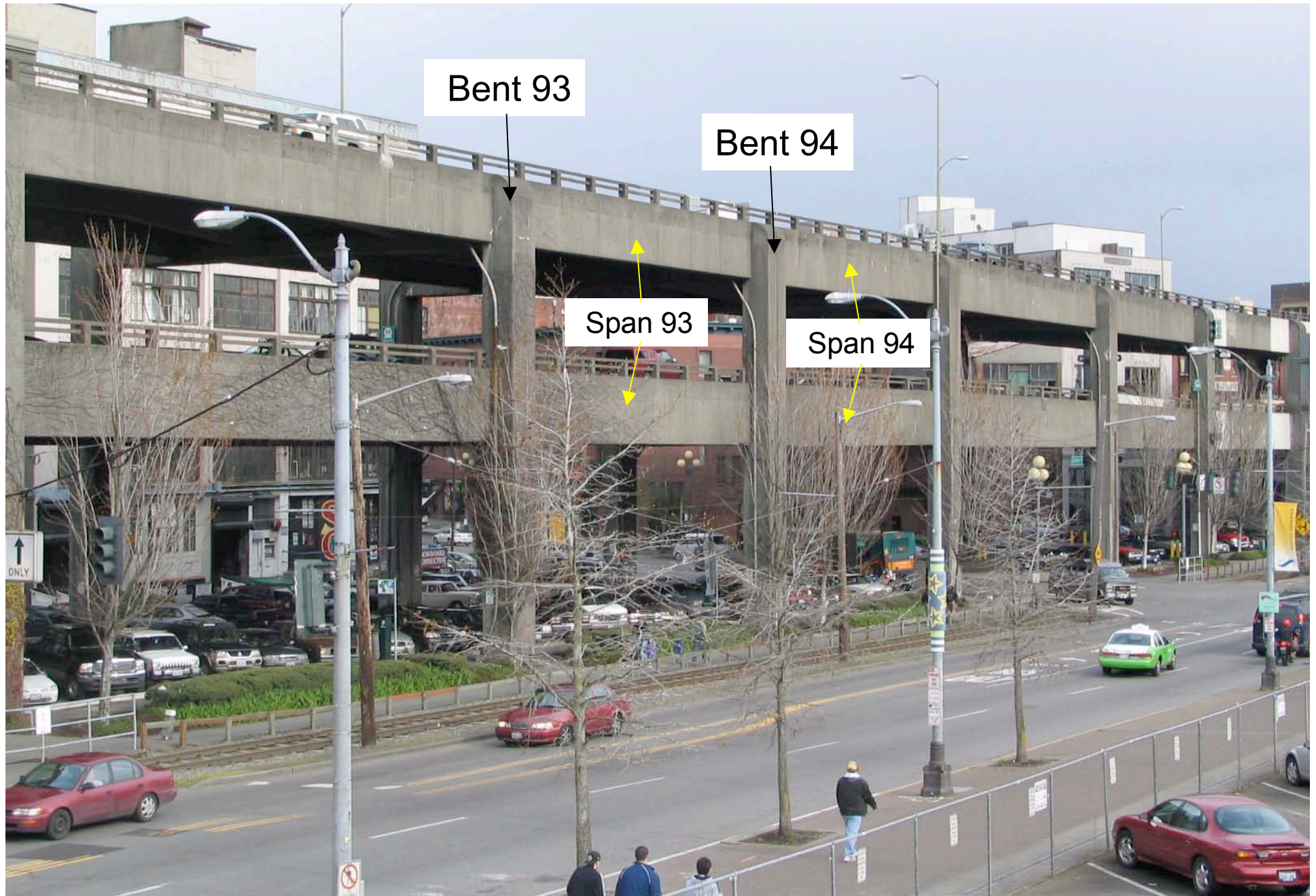


SR 99 Alaskan Way Viaduct



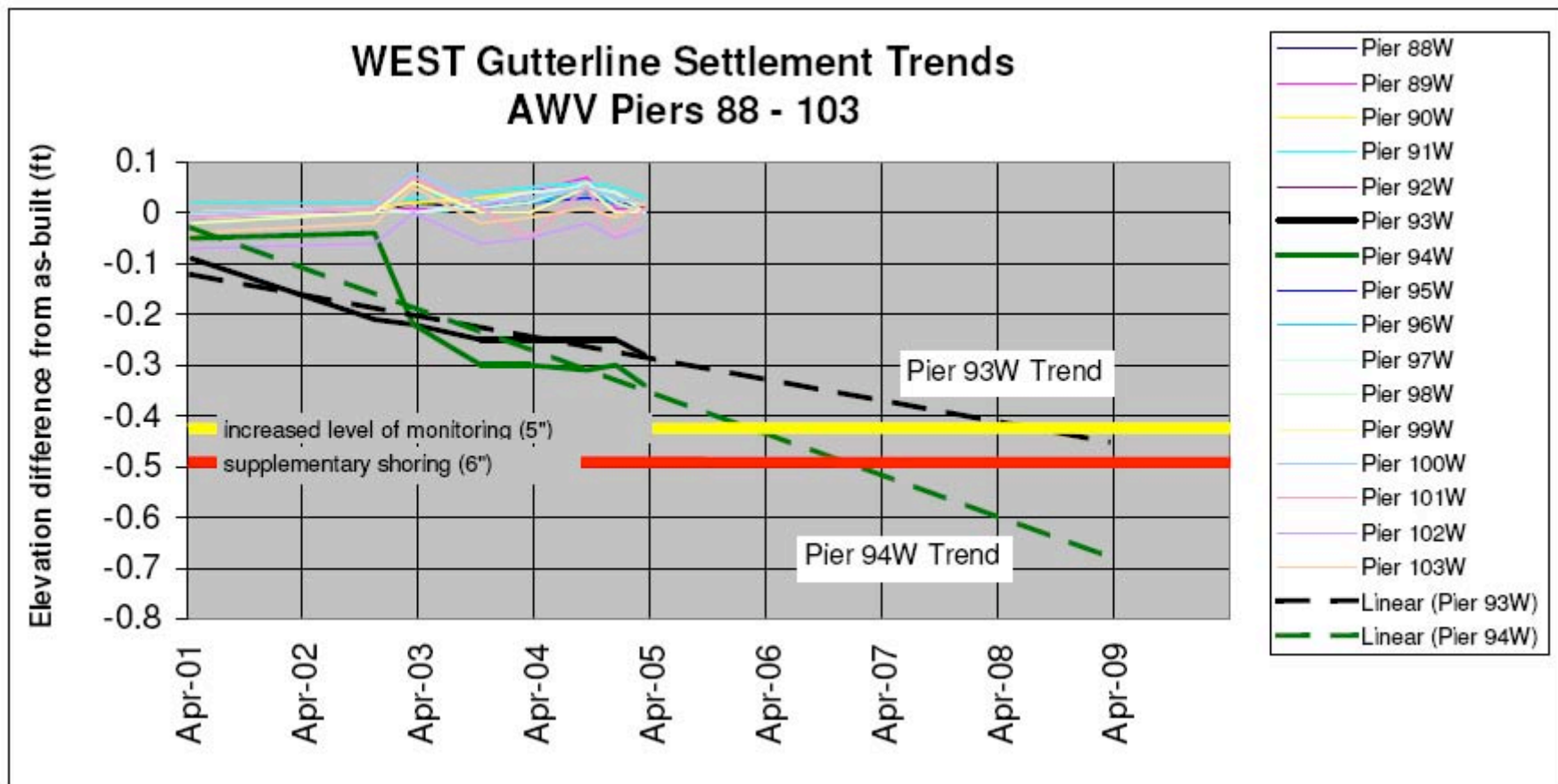
SR 99 Alaskan Way Viaduct (view near Seattle Pier 52 Ferry Terminal)

SR 99 Alaskan Way Viaduct



SR 99 Alaskan Way Viaduct

Pier 94 – Current measurement indicates
4.1 to 4.2 inches of settlement

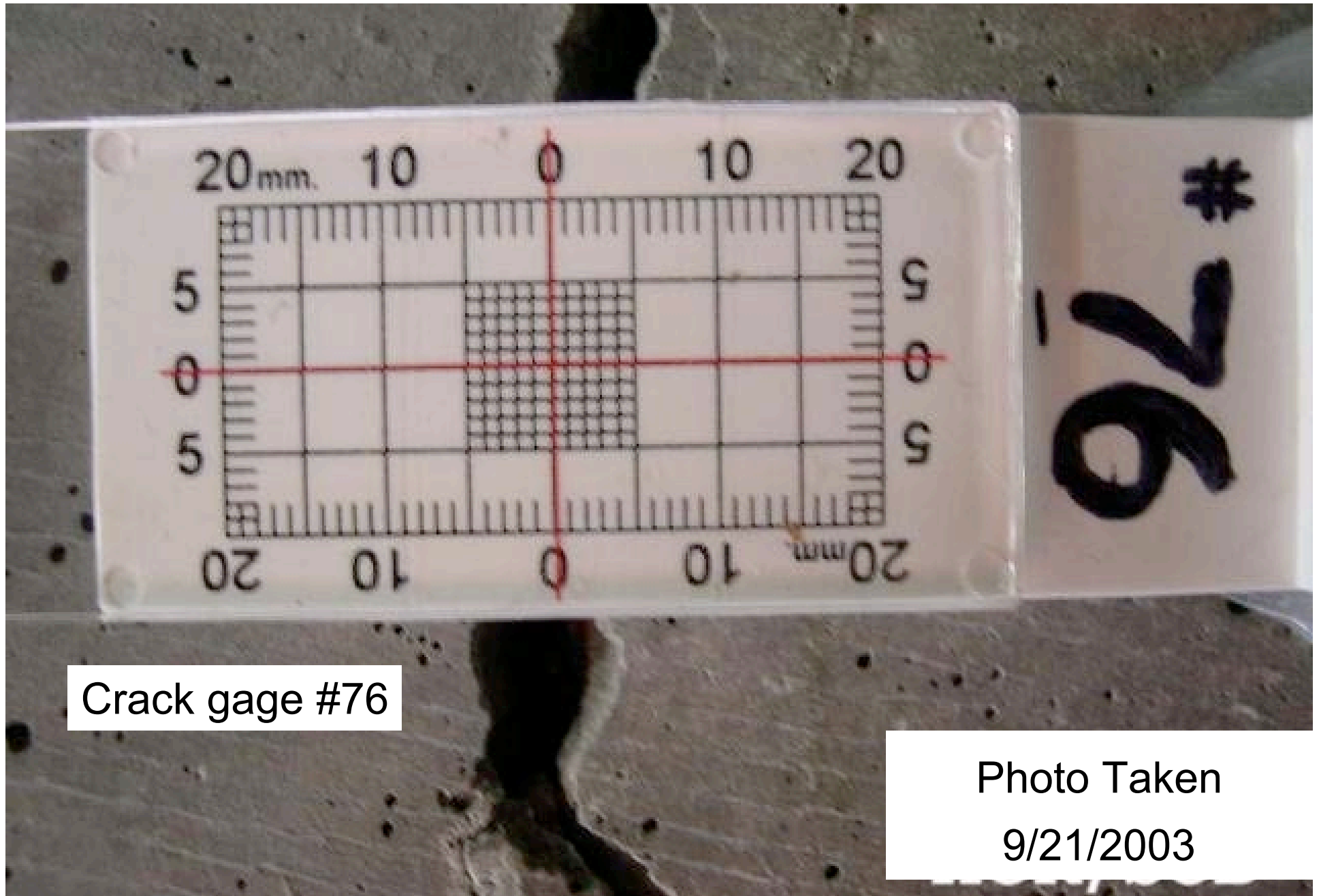


SR 99 Alaskan Way Viaduct



Crack Gage #76 – Span 94 (east side of West Girder)

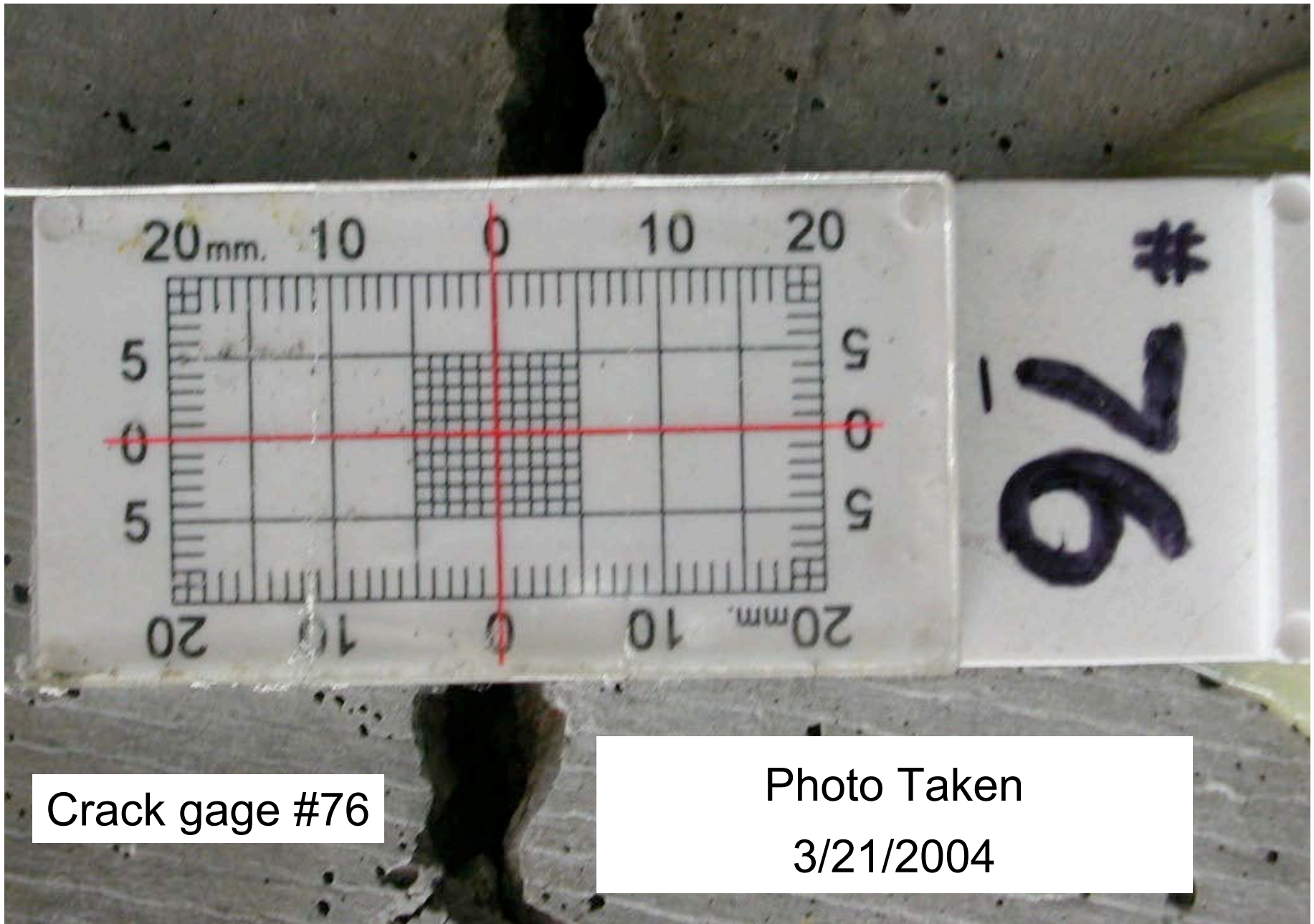
SR 99 Alaskan Way Viaduct



Crack gage #76

Photo Taken
9/21/2003

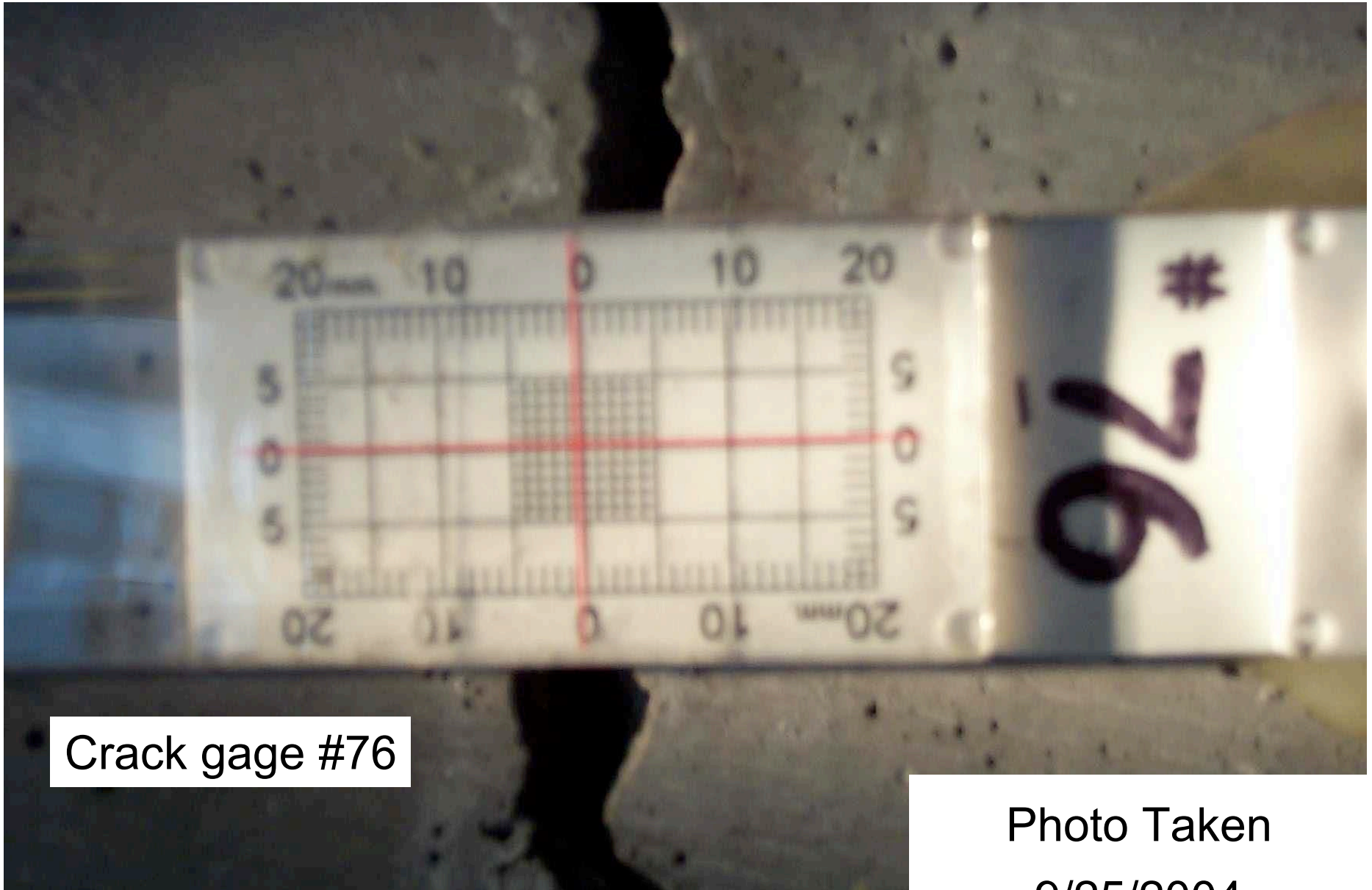
SR 99 Alaskan Way Viaduct



Crack gage #76

Photo Taken
3/21/2004

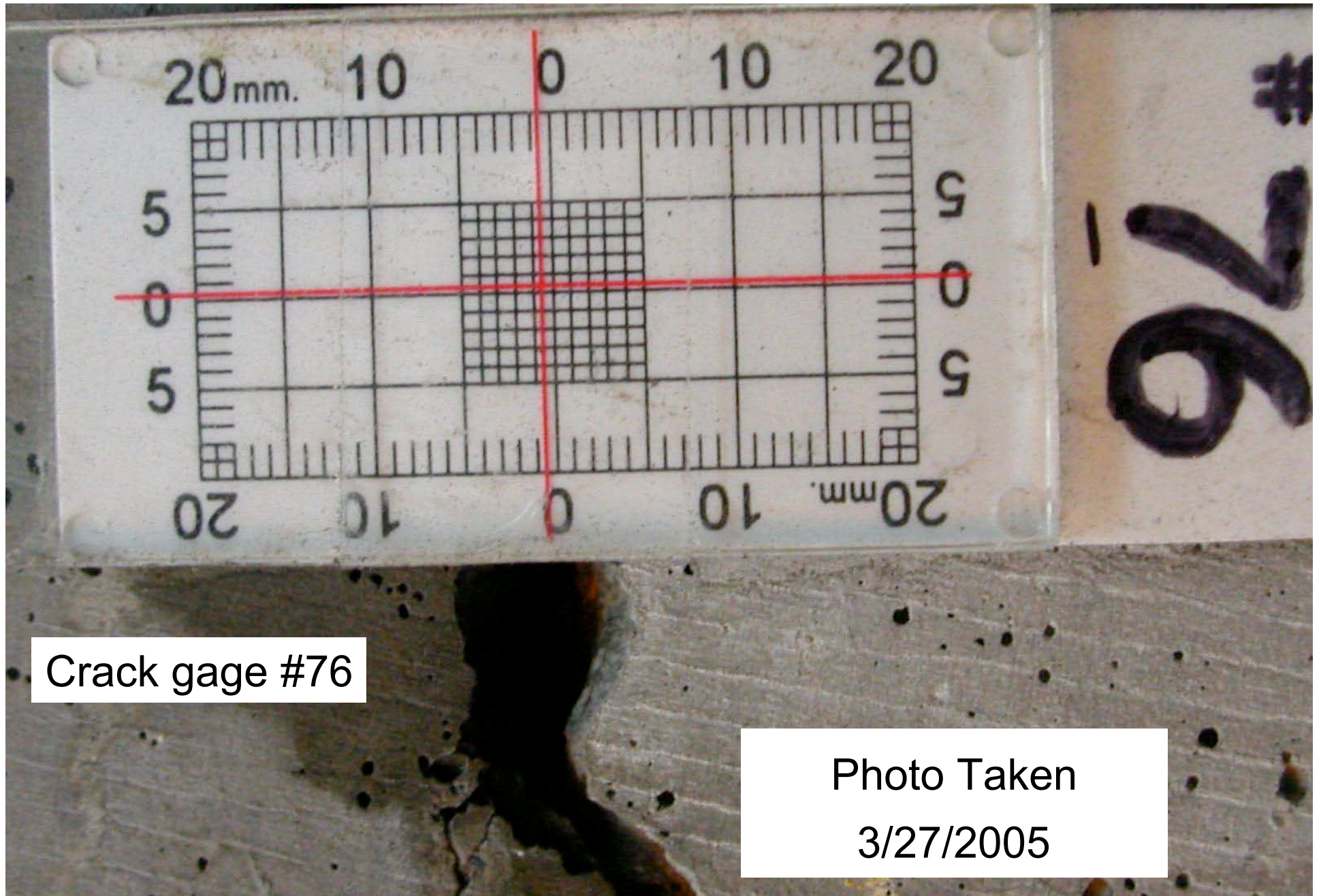
SR 99 Alaskan Way Viaduct



Crack gage #76

Photo Taken
9/25/2004

SR 99 Alaskan Way Viaduct

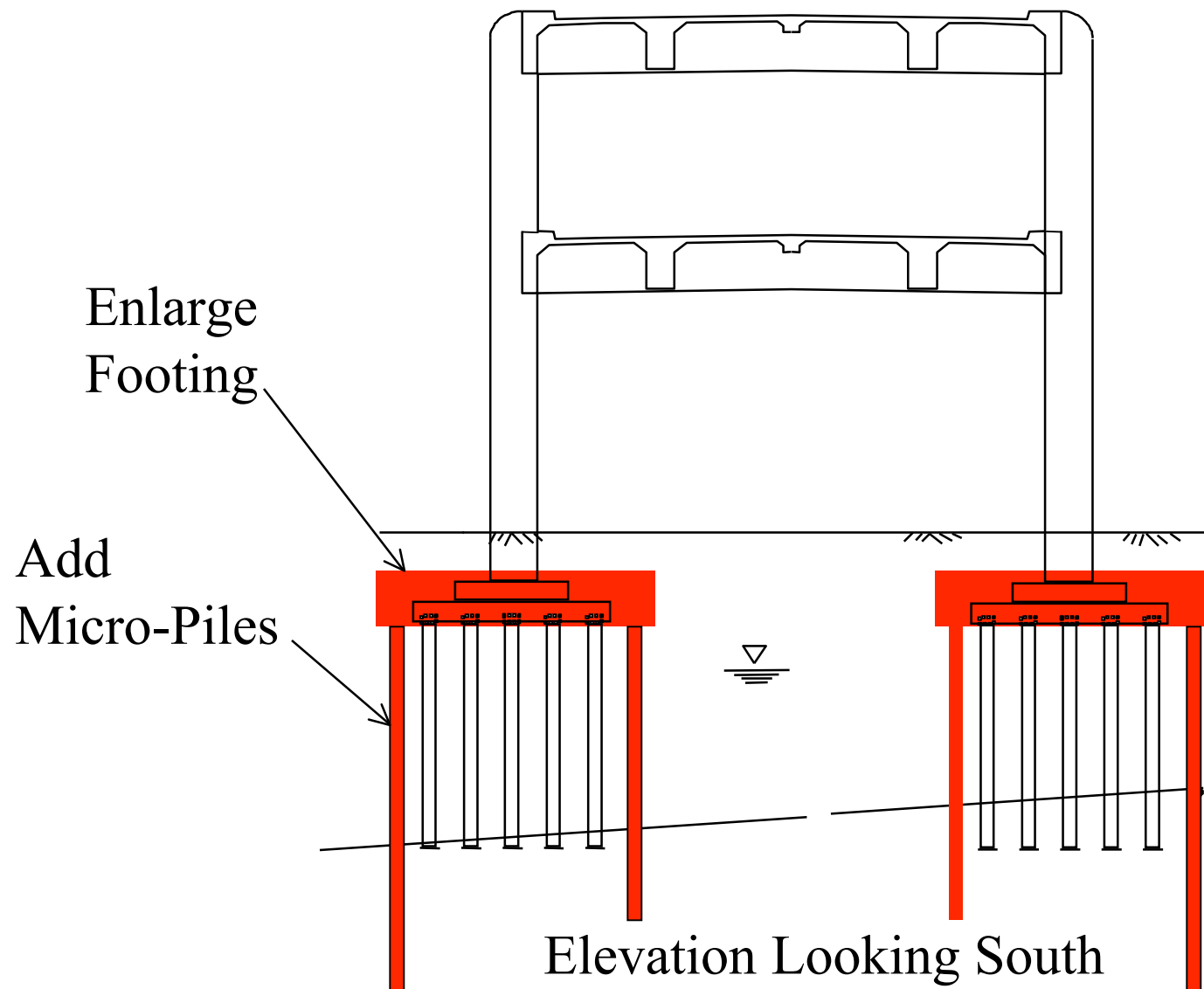


Crack gage #76

Photo Taken
3/27/2005

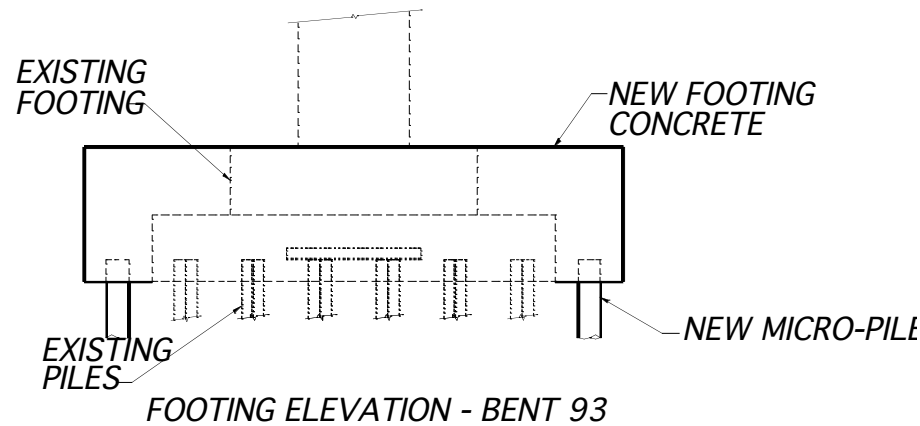
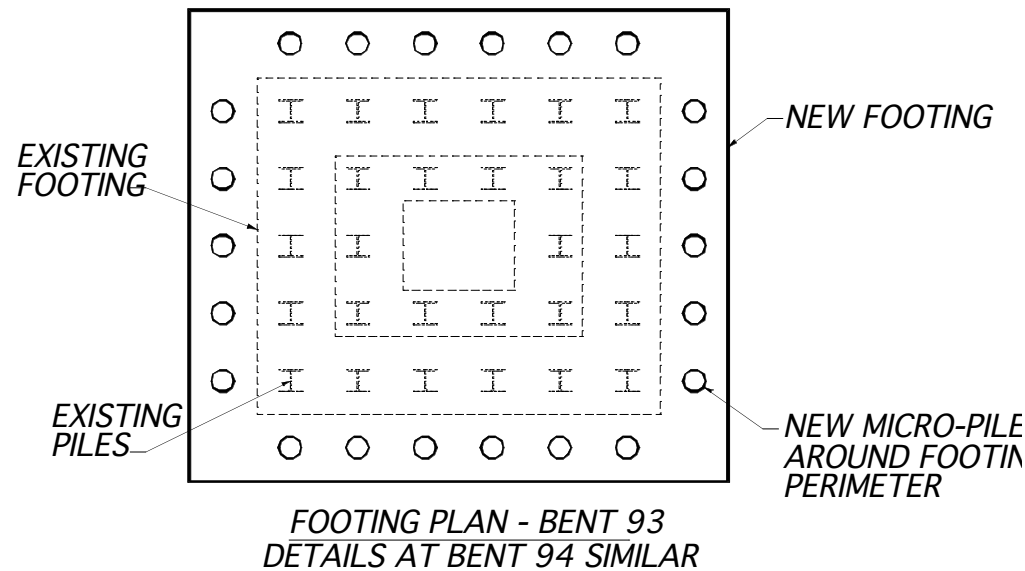
SR 99 Alaskan Way Viaduct

Proposed Repair at Bents 93 & 94



SR 99 Alaskan Way Viaduct

Proposed Repair at Bents 93 & 94



STRENGTHEN EXISTING FOUNDATIONS

SR104 Hood Canal Bridge

Briefing to the Transportation Commission

“Anchor Cable Replacement”

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April, 2005



**Washington State
Department of Transportation**

SR 104 Hood Canal Bridge – East Half



East-Half Bridge built in 1962

SR 104 Hood Canal Bridge (view of East Half)

SR 104 Hood Canal Bridge



SR 104 Hood Canal Bridge

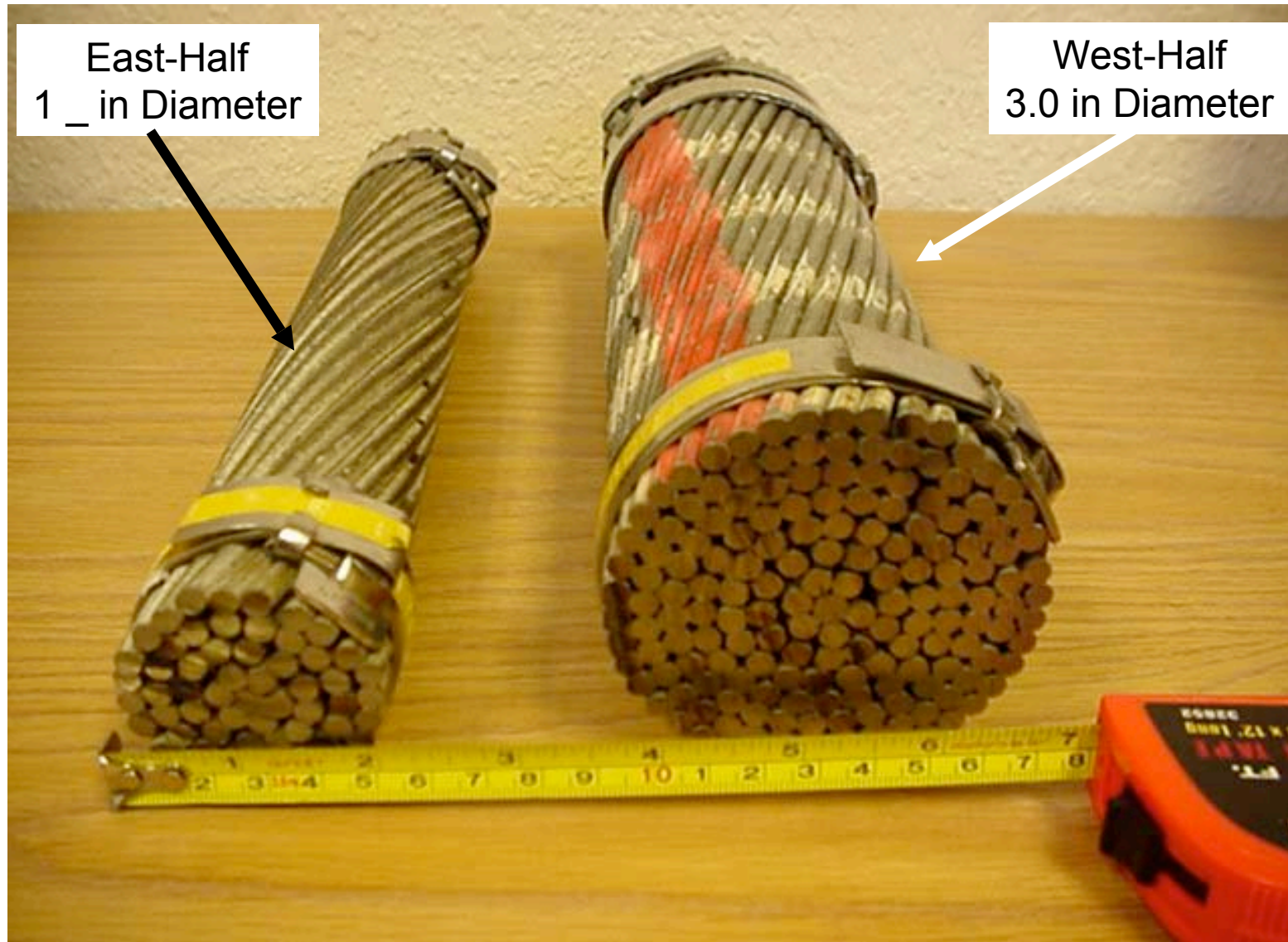
SR 104 Hood Canal Bridge



Wood Debris
(Storm in Dec 1999)

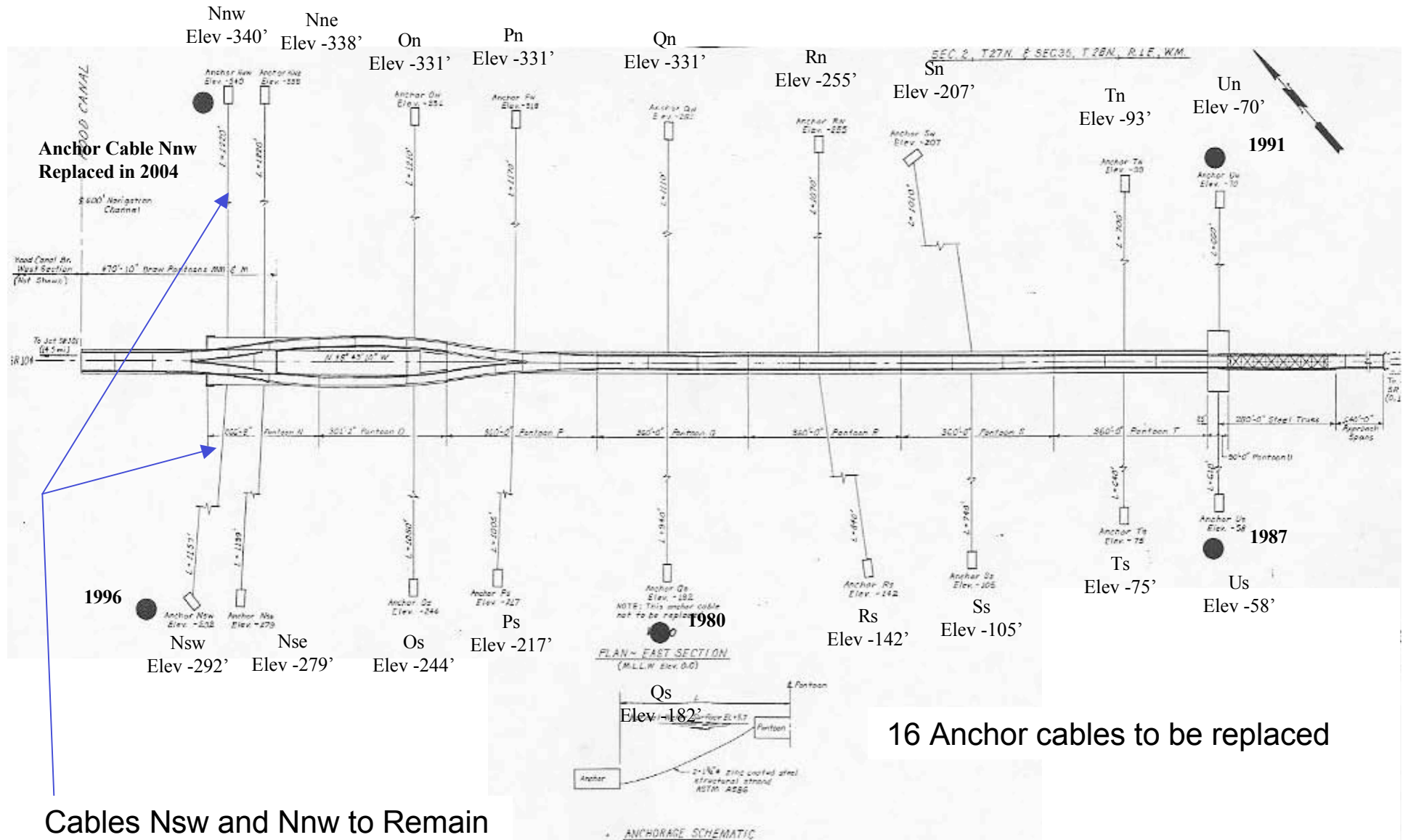
SR 104 Hood Canal Bridge (Wood Debris from 1999 Storm)

SR 104 Hood Canal Bridge



Sample anchor cables (similar to those used on Hood Canal Bridge)

SR 104 Hood Canal Bridge – East Half



16 Anchor cables to be replaced

Note: All cables replaced in 1986 unless otherwise noted

SR 104 Hood Canal Bridge – East Half

East-Half Bridge Anchor Cable
Cable Nnw (draw span)

Broken Cable discovered Aug 8, 2004
Cable Replacement completed Sept. 30, 2004



SR 104 Hood Canal Bridge (Emergency Anchor Cable Replacement)

SR 104 Hood Canal Bridge – East Half

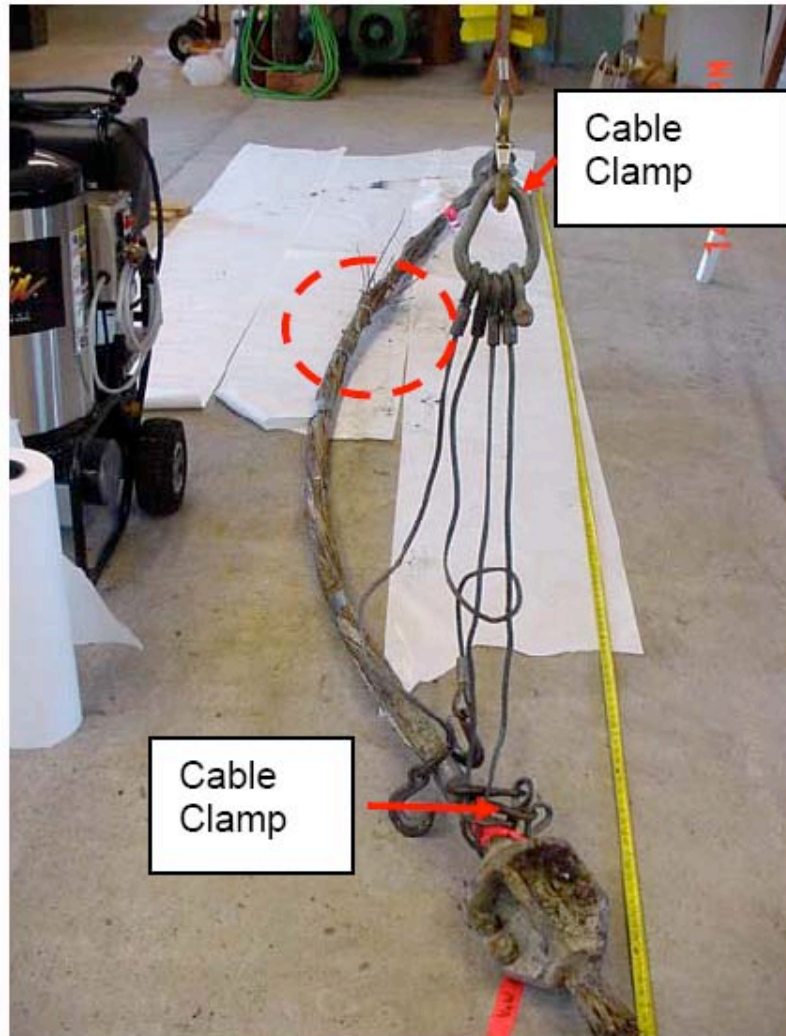


Figure 2, Break in Cable Circled in Red.



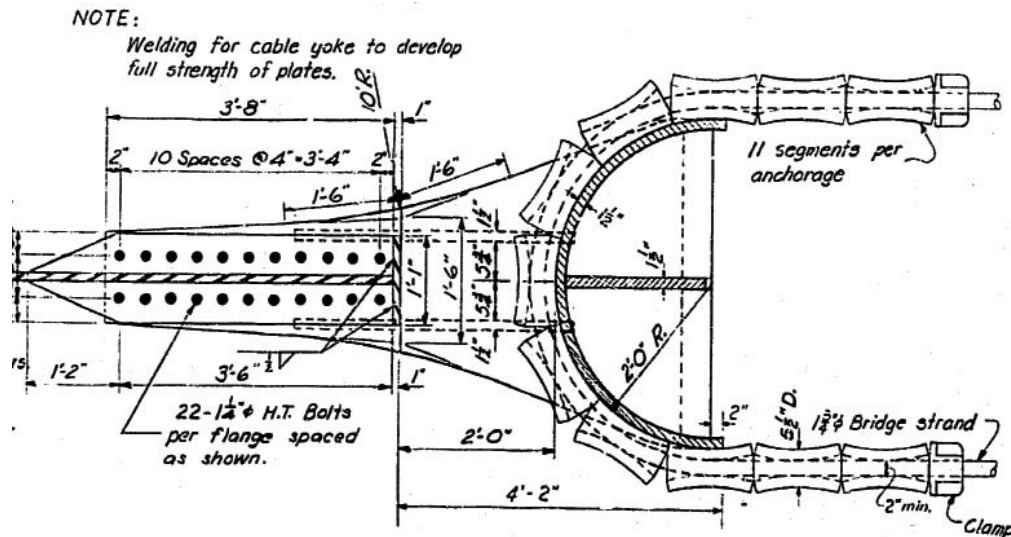
Figure 3, Cable Strands at Fracture Location. Some Individual Strands Show Massive Volume Loss with Ductile Tensile Failure.

**East-Half Bridge Anchor Cable
Cable Nnw (draw span)**

Broken Cable examined in Lab

SR 104 Hood Canal Bridge – East Half

East-Half Bridge Anchor Cable



SR 104 Hood Canal Bridge anchor cable attachment (plan view)



SR 104 Hood Canal Bridge anchor cable

SR 104 Hood Canal Bridge – East Half

Anchor Cable Procurement Contract:

- 16 anchor cables ordered
- The Engineer's estimate \$750,000, Low bid was \$667,040.
- Delivery of 8 cables on May 1, 2005 / remaining 8 on June 1, 2005.

Anchor Cable Installation Contract:

- The Engineer's estimate \$4,771,000, Low bid was \$3,383,500.
- Awarded to General Construction Company on April 4, 2005.
- Cables to be replaced between May 1, 2005 and October 1, 2005.

Total Bid Cost - \$4.05 million